C. Horsfall, Mr. J. E. Flower (Secretary Recreative Evening Schools Association), and other speakers. Excursions will be made to a number of places in the district, and Profs. W. Ridgeway and T. McKenny Hughes, Mr. J. G. Marr, Mr. Scott Elliot, and others, will accompany the excursions for the purpose of explaining the archæology, geology, and botany of the places visited.

Mr. C. J. FORTH, Mathematical Master at Bolton Grammar School, has been appointed Lecturer in Mathematics at the Plymouth Technical Schools.

THE textile department of the Yorkshire College at Leeds has just been added to by the opening of a museum which is to contain a complete collection of woven samples and models of weaving machinery. The building has cost the Clothworkers' Company £3000, and they will, to the extent of £1200, defray the cost of equipping the museum. The opening ceremony was performed by Mr. Sidney Wilson, Master of the Clothworkers, assisted by Mr. J. E. Horne, his senior warden, and other members and officials. Twenty years ago the Clothworkers established the textile department of the college at the cost of £34,000, and they make an annual grant to it of £2500.

SOCIETIES AND ACADEMIES.

LONDON.

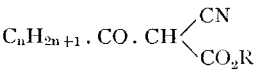
Chemical Society, May 16.—Mr. A. G. Vernon Harcourt, President, in the chair.—The following papers were read:—Kjeldahl's method for the determination of nitrogen, by B. Dyer. The author describes an exhaustive series of experiments made with the various modifications of Kjeldahl's process in order to ascertain their applicability to organic nitrogen compounds of different types.—Note on liquation in crystalline standard gold, by T. K. Rose.—Preparation of the active lactic acids, and the rotation of their metallic salts in solution, by T. Purdie and J. W. Walker. The optical activity of the metallic lactates in aqueous solution is in the opposite sense to that of the active acid from which they are derived; cryoscopic determinations made with the lithium and strontium lactates show that the racemic form is resolved into the two active ones in aqueous solution.—Derivatives of succinyl and phthalyl dithiocarbimides, by A. E. Dixon and R. E. Doran. On heating succinyl or phthalyl chlorides with lead thiocyanate and dry benzene, succinyl or phthalyl dithiocarbimide, respectively, is formed; a number of derivatives of these two substances are described.—The action of nitrous acid on dibromaniline, $C_6H_3BrBr.NH_2 = 1 : 4 : 2$, by R. Meldola and E. R. Andrews. The authors were unsuccessful in preparing a diazoxide from dibromaniline under the conditions which yield these compounds in the naphthalene series; in the present case a diazoamido-derivative, $C_6H_3Br_2.N_2.NH.C_6H_3Br_2$, was obtained.—A new modification of benzilosazone, by H. Ingle and H. H. Mann. The unstable α-benzilosazone, corresponding to the known β-isomeride, is obtained, together with dibenzaldiphenylhydrotetrazone by the action of iodine on a mixture of benzalphenylhydrazone and sodium ethoxide.—Affinity of weak bases, by J. Walker and E. Aston.—Substitution derivatives of urea and thiourea, by A. E. Dixon. The properties of a number of substituted ureas are described.—Note on some reactions of ammonium salts, by W. R. E. Hodgkinson and N. E. Bellairs. Fused ammonium nitrate and sulphate are readily attacked by many metals with evolution of ammonia; other products, such as hydrogen and sulphites, also result in certain cases.

Zoological Society, May 21.—Lieut.-Colonel H. H Godwin-Austen, F.R.S., Vice-President, in the chair.—Dr. R. Bowdler Sharpe gave an account of the ornithological collection made by Dr. Donaldson Smith during his recent expedition into Somaliland and Gallaland. The present series contained about 500 specimens, which were referred to 182 species. Of these twelve were considered to be new to science.—Mr. G. A. Boulenger, F.R.S., read a synopsis of the genera and species of apodal batrachians, and gave a description of a new genus and species proposed to be called *Bdellophis vittatus*.—Lieut.-Colonel H. H. Godwin-Austen, F.R.S., read a list of the land-molluscs of the Andaman and Nicobar groups of islands in the Bay of Bengal, and gave descriptions of some new species, together with a complete account of the distribution of all the species in the various islands of these two groups.—A communication was read from Dr. J. Anderson, F.R.S., containing the description of a new species of hedgehog from Somaliland, which he proposed to name *Erinaceus sclateri*.—A communication from Mr. R. Lydekker contained notes on the structure and habits of the sea-otter (*Latax lutris*).—A communication was read from Dr. B. C. A. Windle containing remarks on some double malformations observed amongst fishes.—Mr. F. E. Beddard, F.R.S., read a paper on the visceral and muscular anatomy of *Cryptoprocta*, dealing chiefly with the brain, alimentary canal, and muscles of this carnivore.

Geological Society, May 22.—Dr. Henry Woodward, F.R.S., President, in the chair.—On a human skull and limb-bones found in the palæolithic terrace-gravels at Galley Hill, Kent, by E. T. Newton, F.R.S. A human skull with lower jaw and parts of the limb-bones were obtained by Mr. R. Elliott from the high-terrace gravels at Galley Hill, in which numerous palæolithic implements have been found. The skull is extremely long and narrow, its breadth-index being about 64, it is hyperdolichocephalic; it is likewise much depressed, having a height-index of about 67. The small extent of the cranium in both height and width shows that it has undergone little or no post-mortem compression, although it has become somewhat twisted in drying. The supraciliary ridges are large, the forehead somewhat receding, the probole prominent, and the occiput flattened below. All the chief sutures are obliterated. Three lower molars and two premolars are in place and are well worn, the three molars being as nearly as possible equal in size. The limb-bones indicate an individual about 5 ft. 1 in. in height. These remains were compared with the fossil human relics which have been found in Britain and on the continent of Europe, as well as with the dolichocephalic races now living, and their relations to the "Spy," "River-bed," "Long-barrow," "Eskimo," and other types were pointed out. The gravels, in which these human bones were found, overlie the chalk at a height of about 90 feet above the Thames, and are about 10 feet thick. They form part of the high-terrace gravels extending from Dartford Heath to Northfleet, and their palæolithic age is shown by the numerous implements which have been found in them, as well as by the mammalian remains which have been met with in similar beds near by, although not at Galley Hill. The human bones were seen *in situ* by Mr. R. Elliott and Mr. Matthew Heys, both of whom speak positively as to the undisturbed condition of the 8 feet of gravel which overlay the bones when discovered.—Geological notes of a journey round the coast of Norway and into Northern Russia, by G. S. Boulger. The author accompanied the Jackson-Harmsworth Polar Expedition as far as Archangel, and returned by way of the River Dvina. His observations relate mainly to four points: the origin of the foliation of the Norwegian gneiss; the question of raised beaches on the north-western coast of Norway; the boulders and boulder-formation of Northern Russia; and the Trias of the Dvina valley. Between Christiansund and Tromsö the author was struck with the wide-sweeping folds of the foliation-planes of the gneissose rocks, which appeared to him more readily explicable on a theory of dynamo-metamorphism of rocks originally in part igneous, than by any process of diagenesis. He noted that the terraces observed in the transverse fjords would be perfectly explained by the formation of ice-dammed lakes, though the terraces of the Gulf of Onega seemed less dubious raised beaches than those of the north-west of Norway. He confirmed the views of previous writers that many of the boulders of the boulder-formation of Northern Russia were of Scandinavian origin. The beds on the Dvina consist of sands and loams, often coloured red, with bands of alabaster and anhydrite. The strata are horizontal or inclined at a low angle. North of Ustyug Veliki the strata are marked as Permian on the Russian maps, and those to the south as Trias, but the author saw no perceptible break in the succession.—On some Foraminifera of Rhætic Age, from Wedmore in Somerset, by Frederick Chapman. The author has examined six samples of clays and limestones collected from a quarry south-east of the village of Wedmore, which has yielded Megalosaurian remains. The microscopical details of the various clay-washings were given, and the great abundance of some forms of the acervuline foraminifer *Stacheia* was noticed. In a comparison made with the foraminiferal faunæ of the older and younger rocks respectively, the Rhætic fauna shows marked affinities with both the Upper Palæozoic and the Liassic facies. Twenty-six species of foraminifera, chiefly of arenaceous types, were described, nine of which are new forms.

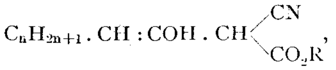
PARIS.

Academy of Sciences, June 4.—M. Lœwy in the chair.—Notice on the works of M. Neumann, by M. J. Bertrand. Franz Neumann, correspondent of the Geometry Section, died at Königsberg on May 23 last. He will be chiefly remembered by his great memoir "On the theory of undulations," in which he considers luminous vibrations as occurring in the plane of polarisation. His great mathematical ability was especially shown by the general formulæ in which he expressed the results of Faraday's discoveries and Lenz's rules.—Volume of salts in their aqueous solutions, by M. Lecoq de Boisbaudran. The author compares the dilatometer and pyknometer methods, and describes a special form of dilatometer used in this work.—A contribution to the study of the acetylcyanacetic esters of the general formula,



$$C_nH_{2n+1} . CO . CH\begin{cases}CN\\CO_2R\end{cases}$$

or



$$C_nH_{2n+1} . CH : COH . CH\begin{cases}CN\\CO_2R\end{cases},$$

by M. A. Haller.—A projected Swedish exploration of Tierra del Fuego, by M. Daubrée. The Swedish Government is about to send out an expedition of three persons to explore the unknown parts of Tierra del Fuego, and the Argentine Government will assist by conveying the members of the exploring party to their destination and finding attendants. MM. Nordenskiöld, Dusen, and Ohlin will arrive at Buenos Ayres in September, and hope, during the Antarctic summer, to explore those parts of the island unvisited by the French expedition of 1882-1883. They aim particularly at gathering material for a comparison of the southern island with Northern Europe; for instance, the quaternary rocks of Tierra del Fuego will be compared with rocks of the same age in the boreal continents.—Report on the project of a balloon expedition to the Polar regions, by M. J. A. Andrée (Committee: MM. Faye, Daubrée, Blanchard). It is reported that the conditions for the success of such an expedition have been fully considered, the funds necessary have been raised, and the expedition will set out from Spitzbergen in July of the coming year. The conditions formulated by M. Andrée are: (1) The balloon must have an ascensional power sufficient to carry three persons, all the necessary instruments, food for four months, arms, a boat transformable into a sledge, and the ballast, in all about 3000 kilograms. (2) The balloon must have the quality of impermeability to such an extent that it can remain thirty days in the air. (3) It must be to a certain extent dirigable.—Memoirs presented: By M. A. Lucas, on the centrifugal and centripetal forces and on a new value of g; by M. Bonnal, an alcoholimeter allowing the simultaneous estimation of alcohol and extract in wines.—Observations of Charlois' planet BX, made with the Coudé equatorial at Algiers Observatory, by MM. Rambaud and Sy.—On the movement of a plane figure in its plane, by M. A. Pellet.—On a category of groups of substitutions associated with groups of which the order equals the degree, by M. R. Levavasseur.—On the density of helium (a letter from M. Clève to M. Berthelot). (See Notes.)—On the reduction of nitrous oxide by metals in presence of water, by MM. Paul Sabatier and J. B. Senderens. The results fully confirm those formerly obtained. Dissolved nitrous oxide is reduced to the state of nitrogen by magnesium, zinc, iron, and even cadmium, with the simultaneous formation of a little ammonia.—Heat of formation of sodium acetylide, by M. de Forcrand.—On phthalyl chloride and phthalide, by M. Paul Rivals.—Conductibility of some β-ketonic esters, by M. J. Guinchant. The sodium salts of the *cyanomethinic* acids behave quite normally with regard to conductibility. These acids, as well as acetylacetone, obey Ostwald's law (K = const.) as far as can be expected with compounds containing an acid group and an ether function. Their chemical affinity deduced from thermochemical data agrees well with that obtained from their conductibilities. The values of K for homologous acids diminish as the molecular weight increases.—Estimation of volatile acids in wines, by M. E. Burcker.—Considerations on the chemical phenomena of ossification, by M. C. Chabrie.—On the flora of the coal deposits of Asia Minor, and the presence in this flora of the genus *Phyllotheca*, by M. R. Zeiller.—On the chlorosis of American vines and its treatment by sulphuric acid, by MM. Gastine and Degrully. The authors find treatment by ferrous sulphate and by sulphuric acid to yield identical results; it is concluded that the sulphuric acid is the active agent in overcoming chlorosis.—*Oïdium albicans*, a general pathogenic agent. Pathogeny of morbid disorders, by MM. Charrin and Ostrowsky. In conclusion, the study of the general disease which determines inoculation by *Oïdium albicans* reveals a series of processes peculiar to this fungus. Comparing these processes with those due to bacteria, some analogies, but more differences, are observed.

BERLIN.

Physiological Society, May 3.—Prof. H. Munk, President, in the chair.—After the President had dwelt on the loss physiology had suffered by the death of Prof. Ludwig, Prof. I. Munk spoke on Kjeldahl's method for determining nitrogen in organic substances as compared with Dumas' method. The former has largely supplanted the latter owing to the greater ease with which it may be carried out, but some chemists have found it less accurate than that of Dumas, notably when applied to casein. The speaker had recently repeated the analysis, and found the above statement confirmed as long as he used oxide of coppei in Kjeldahl's process. But when he used oxide of mercury (Wilfarth) or potassium bichromate (Krüger), the two methods gave identical results for the nitrogen. He had also found Kjeldahl's method applicable to nitrogenous compounds with closed rings, such as pyridin, chinolin, &c. Prof. Gad developed Fick's hypothesis as to the two-fold nature of the chemical processes taking place in a contracting muscle, a hypothesis to which he gave his support on the basis of his experiments made together with Heymans (see NATURE, vol. xl. p. 288), on the influence of temperature on muscular contraction. He described several experiments on the production of heat in muscles contracting isotonically and isometrically, which can be most readily explained on the basis of Fick's hypothesis of two mutually interfering chemical processes.

May 17.—Prof. H. Munk, President, in the chair.—Dr. W. Cowl spoke on the action of diaphragms in microscopes, and explained a general improvement he had obtained by applying an iris-diaphragm to the ocular, capable of regulation from the outside.—Dr. Thierfelder gave an account of experiments made with Dr. Nutan on guinea-pigs.

Physical Society, May 10.—Prof. von Bezold, President, in the chair.—After election of officers, Prof. König spoke on experiments made in conjunction with Dr. Rubens on the distribution of energy in the spectrum of a triplex burner. The methods employed made it possible to measure the energy by means of a bolometer between W.L. 800 μ to W.L. 420 μ, and at the same time to measure the intensity of the light at the same part of the spectrum by means of a Lummer photometer. He dealt in great detail with the correction which is necessary on account of the fact that diffused light acts on the bolometer in addition to that of each given wave-length. The curve of energy thus obtained was so steep that it could only be recorded by logarithms; the energy of the extreme red was more than a thousand times as great as that of the blue. By comparing the relative intensities of the rays of a normal amylacetate flame with that of the above burner, the distribution of energy in the amylacetate flame was deduced by calculation, and in this case also the curve was very steep; the energy of the red end being 300 times that of the blue. The curve for the spectrum of the cloudless sky ascended from the red towards the blue end, whereas it was nearly horizontal for the light from a cloud.—Prof. Neesen exhibited two automatic mercurial air-pumps.

May 24.—Prof. du Bois Reymond, President, in the chair.—Prof. Neesen described an automatic mercurial valve added to his automatic pumps.—Prof. von Bezold spoke on a theory of terrestrial magnetism, based on the construction of the isonomals of terrestrial magnetic potentials. He explained the methods by which he had calculated the isonomals, and discussed the results observable on a chart of the same for the year 1880. The mean values of magnetic potential are simple functions of geographical latitude, and the isonomals have both their poles in the southern hemisphere. The determination of the potential and the construction of the lines of equilibrium is far simpler by Prof. von Bezold's method than by the employment of Gauss's formulæ, and will make it possible to attack a whole series of important problems concerning terrestrial magnetism. As soon as isonomal charts have been constructed for different periods it will be possible to draw conclusions as to the causes of magnetic disturbances.

New South Wales.

Linnean Society, April 24.—The President, Mr. Henry Deane, in the chair.—Description of a fly-catcher, presumably new, by C. W. de Vis. The name *Arses lorealis* was proposed for a fly-catcher from Cape York, with the lower surface entirely white in the male, ochreous in a band on the lower throat in the female, and with white lores in both sexes.—On the specific identity of the Peripatus, hitherto supposed to be *P. leuckarti*, Sänger, by J. J. Fletcher. It was shown by a translation of Sänger's paper (in Russian) descriptive of the Australian Peripatus, that *P. insignis*, Dendy, is a synonym of *P. leuckarti*. Various considerations point to the following classification of Australian Peripatus: *Peripatus leuckarti*, Säng. Australian Peripatus with 14 or 15 pairs of walking legs; without or with an accessory tooth at the base of the fang of the outer jaw blade, or with several (three in one case, indications of even more in another). Males with a pair of (accessory genital) pores between the genital papilla and the anus; with a white tubercle on each leg of the first pair only, or of the last pair only, or of all or only some of the pairs with the exception of the first. (1) *P. leuckarti*, Säng., var. *typica* (*P. leuckarti*, Säng.; *P. insignis*, Dendy). With 14 pairs of walking legs; no accessory tooth; New South Wales, Victoria, Tasmania. (2) *P. leuckarti*, Säng., var. *occidentalis*. With 15 pairs of walking legs; no accessory tooth; West Australia (Mr. A. M. Lea). (3) *P. leuckarti*, Säng., var. *orientalis* (*P. leuckarti*, Säng.) With 15 pairs of walking legs; with one or more accessory teeth; viviparous; Queensland, New South Wales. (4) The Victorian Peripatus described by Dr. Dendy as *P. oviparus* Victoria and Tasmania (probably—for a specimen in the Macleay Museum).—Description of *Peripatus oviparus*, by Dr. A. Dendy. In the light of knowledge gained from the translation of Sänger's description of *P. leuckarti*, already referred to, and the consequent necessary revision of the nomenclature at present in use, the author dealt at length with the larger Victorian Peripatus, which he proposed to call *P. oviparus*.—Notes on the sub-family *Brachyscelinæ*, with descriptions of new species, by W. W. Froggatt. This paper comprised notes upon the classification and systematic position of the gall-making Coccids, some corrections in the earlier descriptions of *Brachyscelis Thorntoni*, together with descriptions of three new species proposed to be called *B. dipsaciformis*, *B. sessilis*, and *B. rosiformis*.—On a Fiddler Ray (*Trygonorhina fasciata*) with abnormal pectoral fins, by J. P. Hill. The specimen observed, a young male 26·9 cm. long, presented a striking appearance by reason of the anterior portion of each pectoral fin being separated from the head by a wide and deep notch. The significance of the abnormality was discussed at some length.

Amsterdam.

Royal Academy of Sciences, April 18.—Prof. Van de Sande Bakhuyzen in the chair.—Prof. MacGillavry gave a sketch of two methods employed by him to detect the adulteration of butter with less than one per cent. of oleo-margarine or with oils.—Prof. Pekelharing read a paper on the objections raised against his view as to the nature of the fibrine ferment, viz. that it is a compound of nucleoproteid and lime, more particularly on the objections brought forward by Halliburton, who, by his important and extensive investigations, has contributed so much to our knowledge in this department. The author had found (1) that artificial fibrine ferment, prepared by treating nucleoproteid first with lime-water and then with carbonic acid, became only partly soluble by being kept under alcohol for a long time, whereas when treated in the same manner as Schmidt's ferment, it yielded a powerful fibrino-plastic solution; (2) that magnesium sulphate-plasma remained liquid, not for want of nucleoproteid, but because it did not contain enough calcium salts. The magnesium sulphate prevented the combination of nucleoproteid and lime; but when the combination had once been brought about, $MgSO_4$ impeded the coagulation in a much smaller degree. Magnesium sulphate plasma was coagulated by artificial fibrine just as well as by ferment from blood serum; (3) that intravenous injection of Schmidt's and Hammerston's ferment had the same consequence as the injection of a small quantity of nucleoproteid, viz. Wooldridge's "negative phase," a retardation of the coagulation of the blood which was effused from the vessels. On the other hand, if a more concentrated solution of fibrine ferment, prepared by Ganger's method, was injected into a vein of a rabbit, the animal died of intravascular coagulation.—Prof. Schoute proved that the number of crystallographic forms of the regular system in a space of n dimensions is $2^n - 1$.—Prof. Kamerlingh Onnes communicated the results of investigations by Mr. A. Lebret in the Leyden laboratory: (1) compensation method of the observation of Hall's effect; (2) on the dissymmetry of Hall's effect in bismuth when the directions of the magnetic field are opposite to each other. In every plate there are two perpendicular directions of great importance. The primary electrodes being attached in accordance with these directions, there is no dissymmetry. When they are attached in a direction making an angle α with one of them, the Hall effect is given by $H \pm \frac{1}{2}(K_1 - K_2) \sin 2\alpha$. It is explained by a difference between the variations of resistance through magnetisation K_1 and K_2 in two perpendicular directions.

BOOKS AND SERIALS RECEIVED.

Books.—Dairy Bacteriology: Dr. E. von Freudenreich, translated by Prof. J. R. A. Davis (Methuen).—Petrology for Students: A. Harker (Cambridge University Press).—A Text-Book of Zoogeography: F. E. Beddard (Cambridge University Press).—Hydrodynamics: Prof. H. Lamb (Cambridge University Press).—Museums Association. Report of Proceedings, &c., at the Fifth Annual General Meeting, held in Dublin, June 26 to 29, 1894 (Sheffield).—The Horticulturist's Rule-Book: L. H. Bailey, 3rd edition (Macmillan).—Agriculture: R. H. Wallace (Chambers).—Off the Mill: Bishop G. F. Browne (Smith, Elder).—Bibliotheca Geographica, Band 1 (Berlin, Kühl).

Serials.—Journal of the Anthropological Institute, May (K. Paul).—Bulletin of the American Mathematical Society, May (New York, Macmillan).—Proceedings of the Physical Society of London, June (Taylor).—Report of the Marlborough College Natural History Society, 1894 (Marlborough).—Journal of the Chemical Society, June (Gurney).—Geological Magazine, June (Dulau).—Phycological Memoirs, Part 3 (Dulau).—Ethnographische Beiträge zur Kenntnis des Karolinen Archipels, 3 Heft (Leiden, Trap).—Natural History of Plants, Part 13; Kerner and Oliver (Blackie).—American Journal of Science, June (New Haven).—Materials for a Flora of the Malayan Peninsula, No. 7: Dr. G. King (Calcutta).—Journal of the Asiatic Society of Bengal, Vol. lxiii. Part 2, No. 4 (Calcutta).—Ditto Vol. lxiv. Part 2, No. 1 (Calcutta).—Science Progress, June (Scientific Press, Ltd.).—Strand Magazine, June (Newnes).—Picture Magazine, June (Newnes).—Engineering Magazine, June (Tucker).

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